



The Far North Western Part of Ontario showed what it can do in the Production of High Grade Potatoes, when it made This Exhibit at the recent Ontario Horticultural Exhibition, in Toronto

Diseases of Ginseng*

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GINSENG has been cultivated only during the last twenty or twenty-five years. The early ginseng growers were little troubled by diseases. During the last few years, however, a remarkable development in the number and severity of ginseng diseases has taken place. There are now recorded some fifteen more or less serious diseases of ginseng. Now, much of the success of the ginseng grower depends upon his ability to prevent disease.

In Ontario there are four serious diseases of ginseng, namely, blight or alternario blight, rust, fibre rot or end rot, damping off of seedlings and wet rot. All these diseases, except the last named, are fungus diseases, that is they are caused by minute plants termed fungi, which live upon the ginseng plants and obtain their food from them. In so doing they injure the ginseng plants and produce disease. The question is often asked, from whence come all these fungus diseases, and why have they become so serious to cultivated ginseng. This question is best answered by comparing the conditions under which ginseng grows wild and the conditions under which it is grown in cultivation.

NATURAL CONDITIONS

Ginseng is found growing wild in rich, moist, well drained soils of hillsides and ravines covered by deciduous trees where

each fall it receives an abundant mulch of forest leaves. In cultivation the ginseng plants are crowded together; very frequently the ginseng beds are not properly underdrained and too often the soil is improperly fertilized so that it loses the acid condition characteristic of forest soils in which ginseng naturally grows, and becomes alkaline.

From this brief comparison, it is seen that the chief factors which account for the increase and severity of fungus diseases under cultivation are: First, crowding the plants together in the ginseng beds so that the spores of disease-producing fungi are readily dispersed from plant to plant by wind, water and insects. In nature the plants are separated by hills and trees and other plants, so that the fungus spores are not readily distributed from one ginseng plant to another. Second, the lack of proper underdrainage; too often the grower depends upon the natural slope of the land or the character of the soil for drainage, forgetting that in the woods, where ginseng grows wild, the trees pump up from the soil the excess of moisture. Third, the change from an acid to an alkaline condition of the soil, due very often to the application of unsuitable fertilizers.

Prevention is the watchword in dealing with all kinds of fungus diseases. It is, therefore, important that the ginseng growers should endeavor to do away as far as possible with the conditions which

under cultivation favor the development and spread of fungus diseases.

Drainage is absolutely essential if the best results are to be obtained. Open drains cannot be depended upon. Ginseng beds should be tile-drained. Three-inch tiles are satisfactory for this purpose; the depth at which these are placed will depend upon the character of the soil. In sandy or gravelly soil they should be placed from three to four feet deep, while in heavy clay soils not more than one and a half or two feet deep.

The lines of tile should be placed from six to eight feet apart and when possible the drains should be placed in the centre of the ginseng beds. Too many growers depend upon the natural slope of the land or the character of the soil for drainage.

FERTILIZERS FOR GINSENG

Much depends upon the applying and the proper kinds of fertilizers to the ginseng beds. If unsuitable fertilizers are applied, rust or fibre rot soon makes its appearance. Lime and wood ashes were for a number of years frequently used as fertilizers upon ginseng beds. The result was that the soil became alkaline and this alkaline condition favored the growth and development of the fungus which produced rust or fibre rot. Consequently this disease became very serious in ginseng beds which had been fertilized with lime or wood ashes. Lime or wood ashes are not to be recommended as fertilizers for ginseng.

Acid phosphate (treated rock phosphate) is a satisfactory fertilizer for ginseng.

*Extract from an address delivered last September before the annual convention of the Ontario Ginseng Growers' Association.